



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
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D407-667-105
Job Sheet 192352



Part No: D407-667-105

Job Qty: 1 pcs

Part Name: Fwd Crosstube - High 407



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 3/21/19

Job Tracking No:

Due Date: 4/18/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG D407-667-145 REV.D / IIN-D206-667 REV.D IPP Rev:F 05.09.01Add holes for comp. w/ Bell Skids KJ/JLM IPP Rev:G 08-05-16 chg QC6 to QC15 DD verf:EC IPP Rev:H 08-06-03 update per DSI9415 (ECN1198) DD verf:ec IPP Rev:I 08-07-14 add (scribe inside of tube) seq.6 DD verf:EC IPP Rev:J 08-07-28 update per (par 08-013) DD verf:EC IPP Rev K 09.01.06 ECN 08-562 EC verf:DD IPP REV:L 11.08.05 PER ECN 11-615 DD VERF:EC IPP REV:M 12.08.20 DSI9628 revA (ECN12-631) DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
110	Packaging 1 - Pick Kit	1 pcs		4/18/19	0.00	0.00	Packaging 1 - 1		
							Packaging 1 - 2		
							Packaging 1 - 3		
							Packaging 1 - 4		
							Packaging 1 - 5		
							Packaging 1 - 6		
							Packaging 1 - 7		
							Packaging 1 - 8		
							Packaging 1 - 9		
							Packaging 1 - 10		
							Packaging 1 - 11		
							Packaging 1 - 12		
							Packaging 1 - 13		
							Packaging 1 - 14		
							Packaging 1 - 15		
							Packaging 1 - 16		
							Packaging 1 - 17		
							Packaging 1 - 18		
							Packaging 1 - 19		
							Packaging 1 - 20		
							Packaging 1 - 21		
							Packaging 1 - 22		
							Packaging 1 - 23		
							Packaging 1 - 24		
							Packaging 1 - 25		
							Packaging 1 - 26		
							Packaging 1 - 27		
							Packaging 1 - 28		

33 6/10/2019

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CANADA
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Container No: S188746



Part: D407-667-105

Job No: 192352

Serial No/Batch: S188746

Revision: D/D

Inspector:

Exp Date:

Instructions: TC STC SH01-5 Issue 3, FAA STC SR01304NY 05/12/15, JCAB JAI

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Gr 4 - Parent
Class

				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	
				QC 7 - 9	
				QC 7 - 68	
				QC 7 - 50	
				QC 7 - 67	
				QC 7 - 40	
180	Outsource - 2 - NDT per QSI038	1 pcs	4/18/19	SKY002-VC	WH 2019-06-14
190	Packaging 2-1 - Receive - B4B	1 pcs	4/18/19	0.00 0.00	Packaging 2 - 1 - B4B
					Packaging 2 - 2 - B4B
					Packaging 2 - 3 - B4B
					Packaging 2 - 5 - B4B
					Packaging 2 - 4 - B4B
					Packaging 2 - 6 - B4B
					Packaging 2 - 7 - B4B
					Packaging 2 - 8 - B4B
					Packaging 2 - 9 - B4B
					Packaging 2 - 10 - B4B
					Packaging 2 - 11 - B4B
					Packaging 2 - 12 - B4B
					Packaging 2 - 13 - B4B
					Packaging 2 - 14 - B4B
					Packaging 2 - 15 - B4B
					Packaging 2 - 16 - B4B
					Packaging 2 - 17 - B4B
					Packaging 2 - 18 - B4B
					Packaging 2 - 19 - B4B
					Packaging 2 - 20 - B4B
					Packaging 2 - 21 - B4B
					Packaging 2 - 22 - B4B
					Packaging 2 - 23 - B4B
					Packaging 2 - 24 - B4B
					Packaging 2 - 25 - B4B
					Packaging 2 - 26 - B4B
					Packaging 2 - 27 - B4B
					Packaging 2 - 28 - B4B
					Packaging 2 - 29 - B4B
					Packaging 2 - 30 - B4B
					Packaging 2 - 31 - B4B
					Packaging 2 - 32 - B4B
					Packaging 2 - 33 - B4B
					Packaging 2 - 34 - B4B
					Packaging 2 - 35 - B4B
					Packaging 2 - 36 - B4B
200	QC 6	1 pcs	4/18/19	0.00 0.00	QC 6 - 9
					QC 6 - 68
					QC 6 - 61
210	Spray Paint - 2 - B4B	1 pcs	4/18/19	0.00 2.00	Spray Paint - 1 - B4B
					Spray Paint - 2 - B4B
					Spray Paint - 3 - B4B
					Spray Paint - 4 - B4B
220	QC 14	1 pcs	4/18/19	0.00 0.00	QC 14 - 15
					QC 14 - 2
					QC 14 - 34
					QC 14 - 41
					QC 14 - 51
					QC 14 - 58

JUN 17 2019

DAS
40
9-89

JUN 17 2019

AS 17-6-15

					QC 14 - 59	
					QC 14 - 9	
					QC 14 - 68	JUN 17 2019 DAS 68
					QC 14 - 40	9-89
					QC 14 - 19	
230	Crosstubes - 4 - B4B	1 pcs	4/18/19	0.00 0.00	Crosstubes - 1 - B4B	
					Crosstubes - 2 - B4B	
					Crosstubes - 3 - B4B	
					Crosstubes - 4 - B4B	AB 19-6-17
240	QC 5	1 pcs	4/18/19	0.00 0.00	QC 5 - 10	
					QC 5 - 12	
					QC 5 - 17	
					QC 5 - 18	
					QC 5 - 19	
					QC 5 - 22	
					QC 5 - 24	
					QC 5 - 3	
					QC 5 - 43	
					QC 5 - 49	
					QC 5 - 51	
					QC 5 - 58	
					QC 5 - 68	JUN 19 2019 DAS 68
					QC 5 - 9	9-89
					QC 5 - 50	
					QC 5 - 30	
					QC 5 - 40	
250	Packaging 1-1 - Pick Kit - B4B	1 pcs	4/18/19	0.00 0.00	Packaging 1 - 1 - B4B	
					Packaging 1 - 2 - B4B	
					Packaging 1 - 3 - B4B	
					Packaging 1 - 4 - B4B	
					Packaging 1 - 5 - B4B	
					Packaging 1 - 6 - B4B	DAS 28
					Packaging 1 - 7 - B4B	9-89
					Packaging 1 - 8 - B4B	
					Packaging 1 - 9 - B4B	
					Packaging 1 - 10 - B4B	
					Packaging 1 - 11 - B4B	
					Packaging 1 - 12 - B4B	
					Packaging 1 - 13 - B4B	
					Packaging 1 - 14 - B4B	
					Packaging 1 - 15 - B4B	
					Packaging 1 - 16 - B4B	
					Packaging 1 - 17 - B4B	
					Packaging 1 - 18 - B4B	
					Packaging 1 - 19 - B4B	
					Packaging 1 - 20 - B4B	
					Packaging 1 - 21 - B4B	
					Packaging 1 - 22 - B4B	
					Packaging 1 - 23 - B4B	
					Packaging 1 - 24 - B4B	
					Packaging 1 - 25 - B4B	
					Packaging 1 - 26 - B4B	
					Packaging 1 - 27 - B4B	
					Packaging 1 - 28 - B4B	
					Packaging 1 - 29 - B4B	
					Packaging 1 - 30 - B4B	
					Packaging 1 - 31 - B4B	
					Packaging 1 - 32 - B4B	
					Packaging 1 - 33 - B4B	

260 QC 4	1 pcs	4/18/19	0.00 0.00	Packaging 1 - 34 - B4B	
				Packaging 1 - 35 - B4B	
				Packaging 1 - 36 - B4B	
				QC 4 - 28	
				QC 4 - 58	
265 DC - 1 - B4B	1 pcs	4/18/19	0.00 0.00	QC 4 - 69	
				QC 4 - 9	
				QC 4 - 46	
				DC - 1 - B4B	
				DC - 2 - B4B	
270 Packaging 3-1 - Stock - B4B	1 pcs	4/18/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
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				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
280 QC 21 - FG	1 pcs	4/18/19	0.00 0.00	QC 21 - FG - 21	
				QC 21 - FG - 70	
				QC 21 - SA - 53	

Part Op 110 - Pick Kit

Descriptions: 120 - CNC Alpha 160 Bender - Bend tube as per Dwg D407-667-145 using CNC bender program 407-fw

130 - QC15- Crosstube Dimensional Check

140 - Crosstubes ***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED

BY: ***** 1- Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill all (3) top holes. Holes facing inboard. 2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D407-667-145. 3- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint. 4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins .Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling. 5- Drill holes and ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill only the top (2) holes. 6- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D407-667-145. 7- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint. 8- Scribe part # and batch # using vibrating stylus as per Dwg D407-667-145 9- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr &

Inspect for surface damage. Repair damage within limits as per Dwg D407-667-145

150 - Crosstubes Chemical Conversion ***IMMEDIATELY AFTER GRINDING*** 1- PRESSURE WASH X-TUBE INSIDE AND OUT 2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER QSI005.

160 - QC5- Inspect part completeness to step on W/O

170 - QC7-Inspect Chemical Conversion Coat

180 - Outsource process - NDT per QSI038 4.1 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

OUTSIDE SERVICE -CROSSTUBES Liquid Penetrant Inspection as per QSI 038 Or Level 2 Attach copy of NDT results to work order

190 - Receive & Inspect for Damage & Mat'l Certs *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Inspect for transit damage

200 - QC6- All purchased or subcontracted products *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Inspect for damage & ensure results are as per Dwg D206-667-145

210 - Spray Paint / NDT Room *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** ***MASK AREA UNDER CLAMP PRIOR TO PAINTING AS PER DWG*** 1-Prime inside and outside crosstube as per QSI 005 4.2.1 *****Let tube sit up right for 30mins before hanging***** P4500-P-23 Base Batch: 5154137 P4500-C-23 Catalyst

Batch: 5188315 Start time: _____ Finish: _____ *** WEAR LATEX GLOVES WHEN HANDLING

CROSSTUBE*** 1-Paint outside crosstube with White Imron as per QSI 005 4.2 Imron 55U white paint

Batch: _____ Imron 125S activator Batch: _____ Start: _____

220 - QC14- Inspect Spray Paint Then,Wrap in plastic bag to protect from scratches

230 - Crosstubes - INSTALL GROUNDING CLAMP AND SEAL WITH SIKAFLEX AS PER DWG A/R SIKAFLEX

BATCH: _____ 1-Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg 2-Install supports with Proseal 890 per D407-667-145 and QSI 015 A/R Proseal 890

Batch: 5176610 EXP: 10/19 3-Install supports clamps Using Dt9565 as per Dwg D407-667-

145 ,Torque to 80-100 IN-LBS. Start: 19-6-17 Finish: 19-6-20 4-Install nut plates as per Dwg D407-667-145. Touch-up rivet heads with Imron paint.

240 - QC5- Inspect part completeness to step on W/O ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***

250 - Pick Kit

260 - QC4- 100% Inspect kits for completeness

265 - Document Control - Photocopy bluefile and create labels as per PPP D407-667-105 CHG005

270 - Identify and pack for shipping as per PPP D407-667-105 Location : FG097

280 - QC21- Final Inspection - Work Order Release

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Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D407-667-105TRN	Crosstube Turning Detail	1 Ea (1 ea)	110-Packaging 1 - Pick Kit	5177657
D2873-043	Nut Plate Assembly	2 Ea (2 ea)	230-Crosstubes - 4 - B4B	
D2873-045	Nut Plate Assembly	2 pcs (2 ea)	230-Crosstubes - 4 - B4B	
D2891-1	Support 2.25	2 pcs (2 ea)	230-Crosstubes - 4 - B4B	
D3595-063-395	Rubber Cushion 0.63" Wide X 3.95" Long	4 pcs (4 ea)	230-Crosstubes - 4 - B4B	
MS20601-AD4W10	Rivet	14 Ea (14 ea)	230-Crosstubes - 4 - B4B	
MS21920-20	Clamp	4 Ea (4 ea)	230-Crosstubes - 4 - B4B	
AN742D36	Plain Clamp Loop	2 Ea (2 ea)	230-Crosstubes - 4 - B4B	
MS21042-3	Nut use MS21042L3 per QSI 017	2 Ea (2 ea)	230-Crosstubes - 4 - B4B	
MS27039-1-08	Screw	2 Ea (2 ea)	230-Crosstubes - 4 - B4B	
MS9165-05	Bracket	2 Ea (2 ea)	230-Crosstubes - 4 - B4B	
NAS1149C0332R	Washer	4 Ea (4 ea)	230-Crosstubes - 4 - B4B	
AN5-10A	Bolt	10 Ea (10 ea)	250-Packaging 1-1 - Pick Kit - B4B	5098022
AN5-30A	Bolt	4 Ea (4 ea)	250-Packaging 1-1 - Pick Kit - B4B	5166980
AN5-32A	Bolt	4 Ea (4 ea)	250-Packaging 1-1 - Pick Kit - B4B	5058983
MS21042L5	Nut	4 Ea (4 ea)	250-Packaging 1-1 - Pick Kit - B4B	5181786
NAS1149D0563J	Washer	18 Ea (18 ea)	250-Packaging 1-1 - Pick Kit - B4B	5174288

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
110-Packaging 1 - Pick Kit 230-Crosstubes - 4 - B4B D206-667-017 ① 5189483	D407-667-105TRN	1	3	0
	AN742D36	2	15	0
	D2873-043 5186472	②	75	0
	D2873-045 5159706	②	42	0
	D2891-1 5176294	②	10	0
	D3595-063-395 5180567	④	57	0
	MS20601-AD4W10 5036481	⑭	272	0
	MS21042-3	2	662	0
	MS21920-20 5103843	④	103	0
	MS27039-1-08	2	546	0
	MS0465-05	2	11	0
	NAS1149C0332R	4	4,983	0
	AN5-10A	10	340	0
	AN5-30A	4	30	0
	AN5-32A	4	385	0
250-Packaging 1-1 - Pick Kit - B4B	MS21042L5	4	701	0
	NAS1149D0563J	18	1,477	0
Part Specifications				
Specifications could not be found.				

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Diagram of a semi-circular arch with the following dimensions and calculations:

- Radius: 23.500
- Span: 45.8125
- Angle at support: 55.2
- Calculation for angle: $\frac{0.242}{3.932} = 0.0615$
- Angle at support: 55.6
- Calculation for angle: $\frac{0.24}{3.929} = 0.0611$
- Span: 45.8125
- Span: ~~45.750~~ (circled in blue)

	Side A	Side B
Bending Passes		
Crushing	6.2%	6.1%
Comments		
OK per DR-1059 4/15/6/11		

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.12	Dimensions updated per Dwg Rev C	KJ	
C	12.04.16	Added bending, crushing dimensions	KJ	
D	12.10.30	Revised Total Span dimensions & Dwg Rev	KJ	

Item	Qty -145	Part Number	Description
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2
10	2	AN742D36	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NAS1149C0332R	WASHER (OR AN960C10L)

GENERAL NOTES:

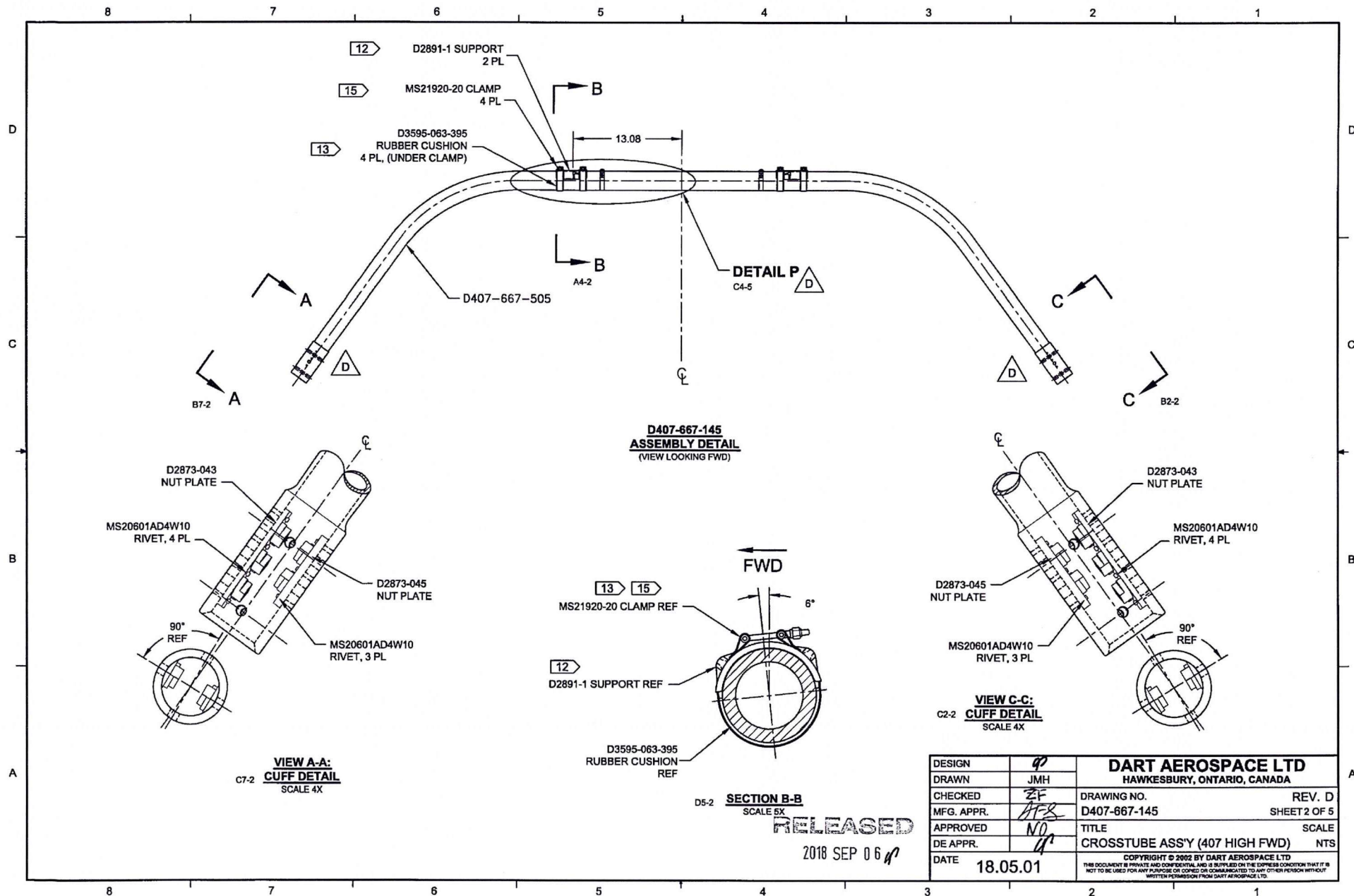
- MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 17.8 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- TORQUE CLAMPS 80 TO 100 IN.-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- MASK AREA UNDER CLAMP PRIOR TO PAINTING.
- SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT.
- PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MEGOHMS.

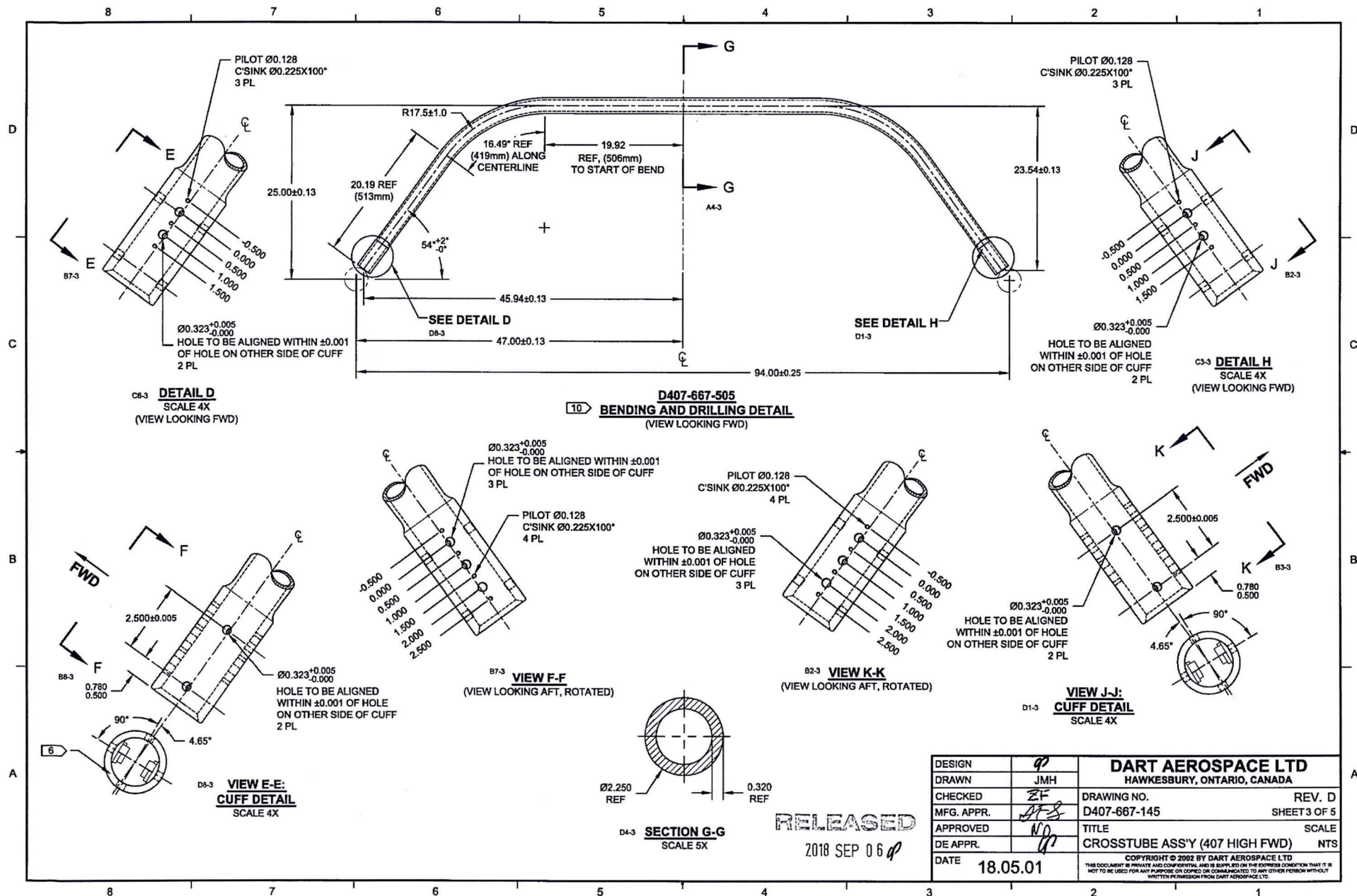
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WITHOUT NOTICE
WORK ORDER
NO. 192352 MLS
1903-21

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2018 SEP 06
2118-797

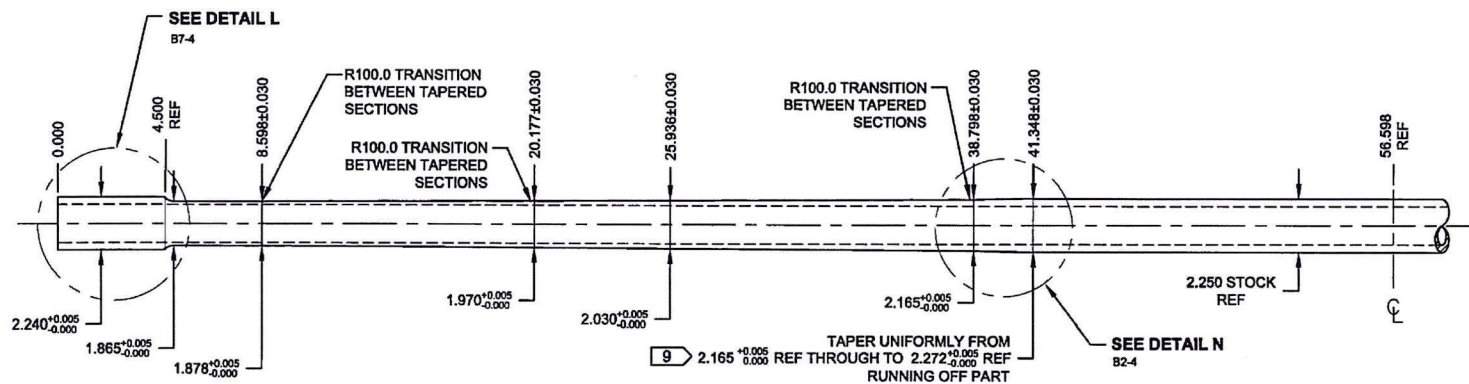
D	REVISE SHEET 2 ASSEMBLY DETAIL HOLE PATTERN PER CAR18-221. UPDATE PARTS LIST AND GENERAL NOTES 12 & 15 TO INCORPORATE DEO C-1. ADD ITEMS 10-14 TO PARTS LIST, ADD GENERAL NOTES 16-18 AND ADD SHEET 5 TO INCORPORATE DEO C-2.	JMH	18.05.01
C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	02.05.08
REV.	DESCRIPTION	BY	DATE
DESIGN	JP	DART AEROSPACE LTD	
DRAWN	JMH	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ZF	DRAWING NO.	REV. D
MFG. APPR.	DFB	D407-667-145	SHEET 1 OF 5
APPROVED	NO	TITLE	SCALE
DE APPR.	JP	CROSSTUBE ASSY (407 HIGH FWD)	NTS
DATE	18.05.01	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



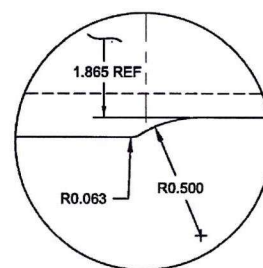


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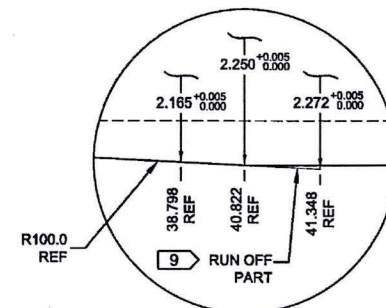
2018 SEP 06



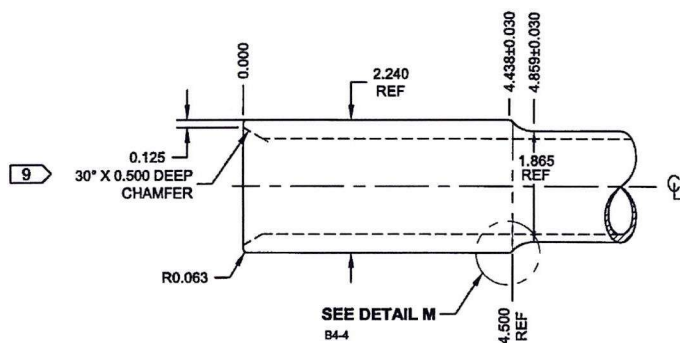
TURNING DETAIL



DETAIL M:
CUFF TRANSITION
B6-4 NOT TO SCALE



DETAIL N:
TAPER RUN-OFF
C3-4 NOT TO SCALE

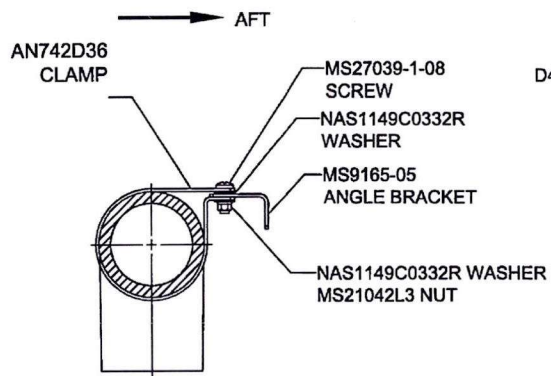


DETAIL L:
CROSSTUBE CUFF
D7-4 NOT TO SCALE

RELEASED

2018 SEP 06

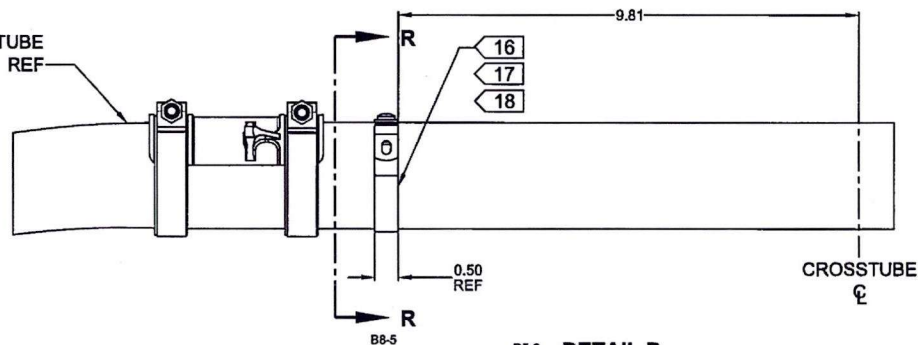
DESIGN	9	DART AEROSPACE LTD	
DRAWN	JMH	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ZF	DRAWING NO.	REV. D
MFG. APPR.	AFB	D407-667-145	SHEET 4 OF 5
APPROVED	ND	TITLE	SCALE
DE APPR.	9	CROSSTUBE ASSY (407 HIGH FWD)	NTS
DATE	18.05.01	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



C4-S **SECTION R-R**



D407-667-505 CROSSTUBE
REF



D5-2 **DETAIL P**
BONDING STRAP INSTALLATION 2 PL



RELEASED
2018 SEP 06

DESIGN	9P	DART AEROSPACE LTD	
DRAWN	JMH	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ZF	DRAWING NO.	REV. D
MFG. APPR.	AFK	D407-667-145	SHEET 5 OF 5
APPROVED	WD	TITLE	SCALE
DE APPR.	9P	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
DATE	18.05.01	COPYRIGHT © 2002 BY DART AEROSPACE LTD	
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Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date :	Sequence #:	QTY Affected :		MRB (QS1042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB043731



Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

Attention: Jenne, Heather

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: POHB043731

PO Date: 6/14/19

Due Date: 6/18/19

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Phone:

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	191909	D135-1027-153	ISSUE P/O: _____ C OF C IS REQUIRED	Firmed	-	6/18/19	1 pcs	0 pcs	1 pcs	\$147.50/pcs	\$147.50
	190564		JUN 14 2019	Firmed	-	6/18/19	1 pcs	0 pcs	1 pcs	\$147.50/pcs	\$147.50
	190560		JUN 14 2019	Firmed	-	6/18/19	1 pcs	0 pcs	1 pcs	\$147.50/pcs	\$147.50
	191910		JUN 14 2019	Firmed	-	6/18/19	1 pcs	0 pcs	1 pcs	\$147.50/pcs	\$147.50
	190562		JUN 14 2019	Firmed	-	6/18/19	1 pcs	0 pcs	1 pcs	\$147.50/pcs	\$147.50
Sub Total:							5	0	5		\$737.50

2	196120	D407-667-105	Fwd Crosstube - High 407 : TC STC SH01-5 Issue 3, FAA STC SR01304NY 05/12/15, JCAB JAPAN STC-32-OSA 02/02/28, EASA STC EASA.IM.R.S.01179 06/07/03, BRAZIL 2009S08-16 09/08/25, BRAZIL 2009S08-17 09/08/25 Outsource process - NDT per QSI038 4.1 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** OUTSIDE SERVICE -CROSSTUBES Liquid Penetrant Inspection as per QSI 038 Or Level 2 Attach copy of NDT results to work order	Firmed	-	6/18/19	1 pcs	0 pcs	1 pcs	\$147.50/pcs	\$147.50
	192352		JUN 14 2019	Firmed	-	6/18/19	1 pcs	0 pcs	1 pcs	\$147.50/pcs	\$147.50
	192353		JUN 14 2019	Firmed	-	6/18/19	1 pcs	0 pcs	1 pcs	\$147.50/pcs	\$147.50
	192354		JUN 14 2019	Firmed	-	6/18/19	1 pcs	0 pcs	1 pcs	\$147.50/pcs	\$147.50
Sub Total:							4	0	4		\$590.00



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB043731



Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
3	192615	D3011-1	Rappel Slide Bar : Various STC's (Outsource process - NDT per QSI038 4.1)1- LPI AS PER ASTM 1417 LEVEL 2 AS PER DWG D3011 2- Certificate of conformity is required	Firmed	-	6/18/19	5 pcs	0 pcs	5 pcs	\$29.50/pcs	\$147.50

5x

JUN 14 2019

Grand Total: \$1,475.00

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 6/14/19 3:45 PM Dart.Guerin.Kimberley

**skyservice****Work Order Traveler**

Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO40756	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: POHB043731
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:**CARRY OUT NDT ON:**

- ✓ 5 RAPPEL SLIDE BARS , P/N# D3011-1 , J/S# 192615 ✓ **DAS 40 9-89**
- ✓ 4 FWD CROSSTUBES , P/N# D407-667-105 , J/S# 196120 , 192352 , 192353 , 192354 ✓
- ✓ 5 MID HEIGHT FWD CROSSTUBES , P/N# D135-1027-153 , J/S# 191909 , 190564 , 190560 , 191910 , 190562 ✓

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M-16						JUN 14 2019	
NO CRACK FOUND							
PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , DEV. MPO11715 , UV LIGHT M-20142							
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

RECEIVED**JUN 14 2019****DART AEROSPACE LTD.**

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp	Date:
Name: RAFIK MELIKIAN		JUN 14 2019

Change Record

PAGE 1 OF 1

Part Number: D407-667-105

Description: CROSSTUBE INSTALLATION, 407 HIGH FWD

[illegible]